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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,977	10/07/2003	William R. Dunn	AME1638-005A	4778
8698 7590 06/25/2007 STANDLEY LAW GROUP LLP 495 METRO PLACE SOUTH SUITE 210 DUBLIN, OH 43017			EXAMINER NGUYEN, THANH NHAN P	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 06/25/2007	DELIVERY MODE. PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/679,977

Applicant(s)

DUNN ET AL.

Examiner

(Nancy) Thanh-Nhan P. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,4,5,7-10,12-14,16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,4,5,7-10,12-14,16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

**Claim 12** is objected to because of the following informalities: "a front plate"; "a rear plate" should be "a front glass plate"; "a rear glass plate";

**Claim 2** is objected to because of the following informalities: "... said front and glass plates" should be "... said front and rear glass plates"

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohnishi et al (US 2004/0036834) in view of Anagnostopoulos et al (US 2002/0067391).**

**Regarding claims 12-14,** Ohnishi et al discloses (fig. 3) a flat panel display comprising:

- a front plate (2)
- a rear plate (1)
- a layer of liquid crystal (3) interposed between said front and rear glass plates
- a TFT array layer (13) interposed between said front and rear glass plates

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- a heater layer (8) integral to the TFT array layer between the glass substrates to allow faster heating of the layer of liquid crystal (par. 0086). The heater layer is patterned onto the TFT substrate in the grid form of intersecting horizontal and vertical lines (par. 0036, wherein the heater layer is patterned corresponding to the display area in a matrix pattern, the display area includes an area where the black matrix is provided).

Ohnishi et al fails to disclose the heater layer is made of metal instead of the disclosed ITO heater.

However, Anagnostopoulos et al teaches (par. 0037) that metals such as Molybdenum, Titanium or Tungsten, which can be deposited at temperatures below 400°C, can be used as the heater layer as well as inorganic compounds such as ITO (indium tin oxide), wherein the heater layer is integral with the TFT array substrate of a liquid crystal display device (par. 0017 and 0033). Thus, the use of these metals and the use of ITO are considered art-recognized equivalent for this purpose.

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to form a flat panel display as taught by Ohnishi et al wherein the heater layer is made of a metal instead of ITO as taught by Anagnostopoulos et al since it is recognized in the art that ITO heater layer and metal heater layers are equivalent as evidenced by Anagnostopoulos et al.

**Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohnishi et al in view of Anagnostopoulos et al as discussed above, and further in view of Takasu et al (US 6067062).**

**Regarding claims 18-20**, Ohnishi et al lacks disclosure of at least one thermal sensor integral to said TFT array layer, wherein the at least one thermal sensor is applied onto said TFT array layer and wherein the at least one thermal sensor comprises an array of diodes.

Takasu et al discloses (fig. 28) at least one thermal sensor integral to said TFT array layer to provide temperature sensing of said layer of liquid crystal (par. bridging columns 20-21), wherein the at least one thermal sensor is applied onto said TFT array layer (since the sensors are formed at the same time as the TFT used for the pixel array), and wherein the at least one thermal sensor comprises an array of diodes (fig. 27 and first full paragraph of column 20).

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have at least one thermal sensor integral to said TFT array layer, wherein the at least one thermal sensor is applied onto said TFT array layer and wherein the at least one thermal sensor comprises an array of diodes for providing temperature sensing of said layer of liquid crystal.

**Claims 16, 2, 4, 5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohnishi et al in view of Anagnostopoulos et al as discussed above, and further in view of Taniguchi et al (US 6839104) and Shin et al (US 6417900).**

**Regarding claim 16**, Ohnishi et al lacks disclosure of a black mask EMI layer interposed between said front and rear glass plates and wherein said black mask EMI layer is electrically tied to zero potential and isolated from Vcom.

Taniguchi et al discloses (fig. 20) that the EMI layer is a black mask layer (6) having light shielding properties and electrically isolated from Vcom (24), but Ohnishi et al and Taniguchi et al fails to specify that EMI layer is tied to zero potential.

However, Shin et al teaches (col. 5, lines 45-46) a black matrix layer sets to be a ground potential. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to form a display as the one taught by Ohnishi et al with a black mask taught by Taniguchi et al, wherein the black mask is tied to zero potential, as taught by Shin et al. With the above-mentioned configuration, it is thus seen that wider viewing angles are obtained by setting the black mask to a ground potential, as taught by Shin et al (col. 9, lines 44-45).

**Regarding claims 2 and 8**, Ohnishi et al discloses (fig. 3) an insulating dielectric layer (9) interposed between the inside surfaces of said front and rear glass plates, wherein the insulating dielectric over-coated onto the heater layer (par. 0037).

**Claim 4** is met the discussion regarding claim 13 rejection above.

**Regarding claim 5**, Ohnishi et al lacks disclosure of wherein said metal heater layer is behind said black mask EMI layer.

Taniguchi et al discloses (fig. 20) an EMI layer (6) made of a metal, i.e. Cr, which has low electrical resistance with EMI shielding functionality (col. 11, lines 65-66). Since the EMI layer is disposed on the upper glass substrate corresponding to the TFT regions, the metal heater layer is then optically hidden behind the EMI layer.

Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the EMI layer as taught by Taniguchi et

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al into the display configuration as taught by Ohnishi et al for preventing the leakage of light and interference, as taught by Taniguchi et al (col. 2, lines 57-59).

**Claim 7** is met the discussion regarding claim 14 rejection above.

**Claim 9** is met the discussion regarding claim 18 rejection above.

**Claim 10** is met the discussion regarding claim 20 rejection above.

### ***Allowable Subject Matter***

The indicated allowability of claims 9, 10 and 18-20 is withdrawn in view of the newly discovered reference(s) to Takasu et al (US 6067062). Rejections based on the newly cited reference(s) above.

### ***Response to Arguments***

Applicant's arguments with respect to claims 2, 4, 5, 7-10, 12-14, 16 and 18-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.


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Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen  
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Art Unit 2871

TN



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